

PLAY IN HAIRY, DOWNY, AND OTHER WOODPECKERS

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There is room for disagreement as to just what constitutes play among lower animals. Although clearcut definitions appear to be avoided by many ethologists, a number of generalizations presented by Marler and Hamilton (1967) are apposite to the present report. In discussing play behavior, for example, these authors state that "observers agree on the subjective judgment that lack of 'seriousness' is a key quality." This lack of seriousness was also a quality in observations I have referred to as play. In each case the woodpeckers were performing, whether in the field where I have been observing them on a year-round basis for 16 years, first in Maryland and then in New Hampshire, or in aviaries where I have studied hand-raised woodpeckers of eight species for a total of eight years, in a manner that strongly suggested that their activities were serving no immediate function and were done at times when the birds were idle with nothing pressing to do.

Marler and Hamilton continue "that individual acts observed in play are often similar to those recurring in normal versions of the same major pattern." For purposes of convenience the play behavior described below can be placed under three headings, namely, agonistic, courtship, and food-storing, each involving a major pattern.

PLAY VERSIONS OF AGONISTIC BEHAVIOR

In my observations I have noticed two forms of play that were agonistic (defensive) in nature. One form of play, in the field as well as in the aviary, was a lively dodging and shifting around the trunk of a tree with wings extended backwards (Fig. 1), with a Black-capped Chickadee (*Parus atricapillus*) or other seemingly harmless species the imaginary assailant; harmless meaning that the smaller species acted simply as a releaser and showed no sign of attack or even interest. Examples of this behavior noted for Hairy (*Dendrocopos villosus*) and Downy (*D. pubescens*) Woodpeckers were as follows:

In December 1963, while studying the roosting habits of Hairy Woodpeckers, I had occasion to follow them in the first half hour of the day. On the 13th a female dodged about behind a tree trunk in the presence of a flock of redpolls (*Acanthis flammea*) that were feeding, and when they flew overhead, she swung around with wings outstretched again. On the following day a second Hairy Woodpecker was foraging well up in an oak. When four Pine Grosbeaks (*Pinicola enucleator*) came to the roadway below, she



FIG. 1. Downy Woodpecker dodging about in play, with a chickadee acting as a releaser. The pose, with wings out, is characteristic of *D. pubescens*, as well as other species of woodpeckers, when playing under similar circumstances.

dropped almost straight downward to the limb nearest above and started dodging. On 23 December the first female preened and scratched after emerging from her roost hole at 07:24. When a flock of chickadees came near, she immediately began dodging about on the side of the trunk away from them. In an additional episode on 26 January 1964, a male twice shifted about playfully when within 5 meters and less of a flock of Pine Grosbeaks.

Essentially similar observations were made on Downy Woodpeckers. Thus at 07:15 on 2 March 1968, a male White-breasted Nuthatch (*Sitta carolinensis*) was singing his courtship song (Kilham, 1972) to his mate 3 m away when a female Downy Woodpecker came between the two and played at dodging the male. She then flew away only to return again to within 1 m

of the male nuthatch for a second bout. Neither species showed any signs of aggressiveness. On 14 July 1968, a juvenile Downy Woodpecker took playful evasive action as a chickadee alighted close by. It then flew away only to return for more dodging. At 07:00 two weeks later the same juvenile played in similar fashion when two White-breasted Nuthatches came close, and again when a chickadee came by. After this it flew away in an erratic type of flight that may also be a form of play. The mother of the juvenile had swung around a limb when close to a chickadee the week before. Although conceivable that juveniles could learn playing from their parents, I believe, from experience with hand-raised woodpeckers, that the playfulness is innate.

A second form of playfulness is the wild, erratic flight in which a woodpecker loops in, out, and around, usually among trees. This might be regarded as just a form of exercise except that it occurs most frequently in the earliest hour of the day at the same time as the dodging and may even follow it directly. A Hairy Woodpecker on 30 January 1965, for example, dodged before a chickadee, then flew off in a wild erratic flight. This type of flight could, therefore, be a form of dodging when on the wing, as if the woodpecker were being pursued by some imaginary attacker. I have seen it many times in the field for Hairy and Downy Woodpeckers, as well as for Yellow-bellied Sapsuckers (*Sphyrapicus varius*), and a few times for the Pileated (*Dryocopus pileatus*), the Red-cockaded (*Dendrocopos borealis*), Red-bellied (*Centurus carolinus*) Woodpeckers, and Common Flickers (*Colaptes auratus*).

The wild, erratic flights may be a form of play not restricted to woodpeckers. Nice (1943), for example, states that "the chief form of play which occurs in young Song Sparrows I have called 'frolicking' which . . . is characterized by runs or flights with sharp turns."

Observations on captives.—Dodging was an almost daily event soon after I turned on lights at about 05:30 in aviaries where I kept various hand-raised woodpeckers. I was thus able to note some aspects of play that I might have missed otherwise. Play might be by members of either sex. Downy Woodpeckers often started dodging on the lower side of an upright, slanting log when a sapsucker flew overhead. This behavior was only noted early after the lights were turned on, and I almost never found that the woodpeckers reacted to the sapsuckers in this manner later in the day. There was no interspecific hostility. A Downy Woodpecker usually held its wings fully extended and straight out behind its back (Fig. 1), closing them intermittently as it shifted about. The fully extended wings seemed to give Downies as well as other woodpeckers speed, agility, and balance in shifting around

one side of an upright log, then the other. It should be emphasized that the wings were never held up and outward as in a threat display. This was brought out clearly in the case of a female Pileated Woodpecker I kept for two and a half years. She was very playful at dodging and might wave her wings as well as extending them when a flicker started flying about. The Pileated Woodpecker often raised her crest as she moved her head and long neck to peer around at her fancied assailant. Later in the day a flicker might fly very close without disturbing her at all. One day, however, the Pileated looked up from the log where she was working to find a Red-bellied Woodpecker in an aggressive pose just above her (Kilham, 1961). She immediately went into a threat display, wings held out horizontally and somewhat back, rapping on the log as she did so (Kilham, 1959a). This was a "serious" response to a really aggressive threat, and distinct from dodging. When the Red-bellied Woodpecker left, she resumed feeding peacefully. The Pileated Woodpecker, in spite of its comparatively large size, sometimes flew about the aviary in wild, erratic flights. These were always taken within a short interval after leaving the roost hole, when there was no sign of her being disturbed.

Several Hairy Woodpeckers that I raised in New Hampshire were kept in an aviary with Red-breasted Nuthatches (*Sitta canadensis*) and other birds. Although the Hairies never played the dodge game with each other or with Downy Woodpeckers, they did so frequently with the nuthatches, following their every movement as they flew about, sometimes for as long as 3 or 4 minutes.

Early in the year I had placed the Hairy Woodpeckers in a large glass-sided cage, soon after they had passed from the nestling stage. Here one juvenile, a few mornings later, dodged about on an upright stick before a house fly buzzing against the glass. Thus, as on previous occasions, small imaginary assailants appeared to be the best releasers.

My Yellow-bellied Sapsuckers also played at dodging but did this at times with other sapsuckers. They were the only woodpeckers to dodge before their own species. A possible explanation is that juvenile sapsuckers, as observed in the wild, stay together in family groups (Kilham, 1962) and are comparatively tolerant and playful with each other. I never observed dodging among captive flickers. This may be because they are ground feeders and hence less adapted to shifting about on upright logs and tree trunks.

PLAY VERSIONS OF COURTSHIP IN IMMATURE WOODPECKERS

While my flickers and Red-bellied Woodpeckers did not carry on the erratic flights and dodgings of the other captive woodpeckers, they appeared to have the same exuberant sense of play, manifested in other ways. Flickers,

for example, perform bill-waving dances as adults (Kilham, 1959b). These are accompanied by "chewki, chewki" notes both in courtship and in performance of the dances against rivals of the same sex. My hand-raised juveniles began performing these dances to each other within three weeks of the time they would have fledged and it soon became a daily event that I interpreted as play. Many of these dances, as seen among wild flickers in autumn months, might conceivably be interpreted in the same way if the birds were immatures as I knew my captives to be.

The Red-bellied Woodpeckers had several activities that appeared to be play. As described elsewhere (Kilham, 1958, 1961), this species does much tapping, beginning in midwinter. One of my hand-raised females that was unusually tame did a great deal of tapping on various objects about the aviary beginning in September of her first year, when she was three months old, both to me when I entered the room and to a Pileated Woodpecker in the same cage. The tapping of Red-bellied Woodpeckers may thus be like the dances of flickers, an integral part of the courtship of adults but performed as play by juveniles at an early age.

PLAY VERSION OF FOOD STORING

The Red-bellied Woodpeckers had an additional form of play of a different nature. This as mentioned previously (Kilham, 1963), consisted of storing "miscellaneous objects of no apparent value. When I gave one female a bent, 3-inch nail, she spent five minutes trying to insert it into various holes, hunching her shoulders forward as she did so. Toothpicks, clips, or even small wads of paper elicited similar behavior. The woodpeckers would also store objects of their own, particularly a male, which would sometimes loosen a sliver of wood several inches long, arrange it to point straight forward in his bill, then fly about the aviary in search of a storage place. This same male was preparing to store another and smaller chip on 6 April, when his mate flew up, took the chip in her bill, and flew off with it." Storage of miscellaneous objects was limited to *C. carolinus* with one exception. This was on a single occasion when a Yellow-bellied Sapsucker tried to store a chip of wood in six different holes before finding one that was suitable. Eibl-Eibesfeldt (1970) describes a not dissimilar handling of sticks in play by young Woodpecker Finches (*Cactospiza pallida*).

Storage of odd objects has also been described for Acorn Woodpeckers (*Melanerpes formicivorus*). Ritter (1921) gave his opinion of the habit in this species by stating that "the [storing] instinct sometimes goes wrong to the extent of storing pebbles instead of acorns, thus defeating entirely the purpose of the instinct." It is not always easy, however, to perceive the purpose of what animals are doing. "Play," for example, may not be a case

of "instincts" gone wrong so much as a way of developing and practicing skills against a time when an animal may need them for survival. Play, according to Eibl-Eibesfeldt (1970), is learning.

DISCUSSION

Thomson's *Dictionary of Birds* (1961) states of play that it is "a form of activity much less apparent than in many mammals, but nevertheless occurring and not exclusively in the young," although few examples, it continues, are known among adult birds. Thorpe (1956), however, states it as evident that true play is fairly widespread among birds and gives numbers of references to play among ravens, hawks, hornbills, and other groups. So far I have encountered no references to play in the Picidae. Play among woodpeckers as described above is essentially no different in some of its forms from that described for other groups.

Hand-raised woodpeckers were a special asset to the present study of play for several reasons. One was that by turning on aviary lights at 05:30 I had an opportunity to see a number of species in the half hour or less after roosting, which is the time of day when they are most exuberant and playful. A second asset was tameness. Not all of my captives were tame, for some of them became quite wild in spite of my having taken them from the nest at an early age. It was the ones that were the most tame and not disturbed by my presence that were the most playful. This suggested that even if a woodpecker is not disturbed enough to fly away in the presence of an observer in the field, he may be wary enough not to play while being watched. This may account in part for the paucity of accounts of play among wild birds. A third reason that captives offer unusually good opportunities for observing play behavior is embodied in a further remark by Marler and Hamilton (1967) that "animals play when they have nothing else to do." My woodpeckers, being provided with food, shelter, and an absence of predators, did appear to have more time for idling than they would have had in the wild.

Among definitions of play given by others, none has fitted my impressions better than that of Armstrong (1947). According to him, "Surplus vitality may manifest itself in many ways which are commonly described as playful when, apart from the exercise involved, and their function in providing a means of expression for exuberant energy, they do not directly serve some biological end." The idea of "surplus vitality" is one that I have found particularly applicable. Armstrong goes on to add that play may "acquire value, as, for instance, when playful combats . . . serve as training for serious fighting in later life." He might have added "for escape from predators" as well as for serious fighting.

Hairy and Downy Woodpeckers swing under limbs and dodge behind

trunks when in actual combat. Being more or less solitary as adults, or at least not as gregarious as flickers, they do not usually play with each other as juveniles or as young adults, possibly because the mock combat of dodging might be interpreted as threat or fight evoking. This may explain why they seek out harmless species as chickadees that give them something living to dodge away from.

A final conclusion is that play among birds is a subject worthy of more attention than it has received. If play is left out of one's studies, it is possible that something of vital importance has been omitted in the understanding not only of the ontogeny of social and other behavior, but also of the total way of life of the species concerned.

SUMMARY

In observations made in the course of 16 years in the field and in eight years for captive individuals, a number of forms of behavior appeared to serve no immediate function and, in their lack of "seriousness," were clearly recognizable as play. As with other animals, the play was a version of some major pattern of behavior and these, in this report, included agonistic, courtship, and food-storing.

Play versions of agonistic (or defensive) behavior were of two types: (a) a form of play in which a woodpecker dodged about a tree trunk, with wings extended straight out backward before a chickadee or other small bird used as an imaginary assailant. Dodging was observed for Hairy and Downy Woodpeckers in the field and for these two species as well as for Yellow-bellied Sapsuckers and a Pileated Woodpecker in captivity; (b) a wild, erratic type of flight which was seen in a total of seven species, and in four of them in the aviary as well as in the field. These flights sometimes followed the dodging.

Play versions of courtship were noted for immature captives of both Common Flickers and Red-bellied Woodpeckers, when only a few months of age. For the flickers, this play consisted of bill-waving dances performed among pairs of juveniles and for the Red-bellied Woodpeckers in miscellaneous tapping performed on slight provocation.

The Red-bellied Woodpeckers, in what was interpreted as a play version of food-storing, picked up miscellaneous objects, such as bent nails, and tried to store them in crevices. This type of play was also observed once in a Yellow-bellied Sapsucker.

All of the woodpeckers were most exuberant and playful in the first half hour of the day after roosting. Only those individuals, however, that were the most tame and the least disturbed by the observer made good subjects for the study of play.

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RAPTOR TELEMETRY RESEARCH SURVEY REPORT

The Bio-Telemetry Committee of the Raptor Research Foundation, Inc. has recently completed this 47 page report, compiled by Mark R. Fuller, Thomas H. Nicholls, and Thomas C. Dunstan. It consists of detailed comments and techniques from about 40 people who are using or thinking of using radio transmitters to study raptorial birds. A list of publications dealing with raptor telemetry and a list of commercial suppliers from which telemetry equipment can be purchased are also included in the report. The report is available for the price of \$1.00 by writing: Raptor Research Foundation, Bio-Telemetry Committee, c/o Biology Department, University of South Dakota, Vermillion, SD 57069, USA.